



# DICTIONARY OF MICROBIOLOGY and MOLECULAR BIOLOGY

Second Edition

Paul Singleton  
Diana Sainsbury

A Wiley-Interscience Publication

JOHN WILEY & SONS  
Chichester · New York · Brisbane · Toronto · Singapore



ANAEROBIC DIGESTION.) (Sulphate, sulphite or thiosulphate cannot be used as terminal electron acceptor.) Fumarate or L-malate can be fermented to acetate and succinate. Optimum growth temperature: 30°C. Optimum pH: 7.2–7.5. Colonies are pink or peach-coloured, translucent to opaque. GC%: ca. 50–63. Type species: *D. acetoxidans*. Strains which are ovoid, with a polar or subpolar flagellum, and which do not use alcohols as substrates have been referred to as '*D. acetexigens*'. [Book ref. 22, pp. 664–666.]

**determinant** (1) (antigenic determinant; determinant group; epitope) (*immunol.*) Of an antigenic macromolecule: any region of the macromolecule with the ability or potential to elicit, and combine with, specific antibody. Determinants exposed on the surface of the macromolecule are likely to be *immunodominant*, i.e. more immunogenic than other (*immunorecessive*) determinants which are less exposed, while some (e.g. those within the molecule) are non-immunogenic (*immunosilent*). (See also ANTIGEN.)

(2) (*genetics*) A gene or functional gene group.

**detritivore** Any organism (e.g. earthworm, lugworm, bivalve mollusc) which feeds by ingesting detritus (such as soil particles), removing and digesting e.g. adherent microorganisms, and voiding the residue.

**Detroit-6** An ESTABLISHED CELL LINE derived from human sternal bone marrow; the cells are heteroploid and epithelioid.

**Dettol** See PHENOLS.

**Dettol chelate** A disinfectant which contains chloroxylenol (see PHENOLS) and EDTA; EDTA potentiates the action of chloroxylenol on Gram-negative bacteria by increasing cell permeability. It is active against e.g. many strains of *Pseudomonas aeruginosa*.

**deuteromycetes** See DEUTEROMYCOTINA.

**Deuteromycotina** (deuteromycetes; Fungi Imperfecti) A non-phylogenetic category originally created for fungi with no known sexual stage; the category still includes fungi with no known sexual stage (and some fungi which form neither conidia nor sexual structures: see AGONOMYCETALES), but it also includes the asexual (= anamorphic, conidial or imperfect) stages of various fungi which are now known to have a sexual (= teleomorphic or perfect) stage in the Ascomycotina or the Basidiomycotina.

For convenience, 'Deuteromycotina' is generally treated as a subdivision within the EUMYCOTA. The conidium-forming deuteromycetes are arranged into form genera (see FORM GENUS) primarily on the basis of the characteristics of their conidia and their modes of conidiogenesis (see CONIDIUM). (See also SACCAR-

DOAN SYSTEM.) The inclusion of a number of form species in a given form genus means only that those fungi have similar asexual stages; such fungi are not necessarily related (and are often unrelated) in an evolutionary sense (as determined by the sexual characteristics of the organisms, when known). Thus, a given form genus may contain e.g. anamorphs corresponding to the teleomorphs of different genera together with ANA-HOLOMORPHS. (For convenience, the word 'form' is generally omitted when referring to a form genus, form species etc.) Classification of the deuteromycetes on the basis of their asexual stages facilitates the identification of those members in which the asexual stage is that which is most commonly encountered in nature (and which may form the sexual stage only rarely).

Two classes [Book ref. 64, p. 112]: COELOMYCETES and HYPHOMYCETES.

**deuterosome** In a eukaryotic cell: a dense region in the cytoplasm which can act as a MICROTUBULE-ORGANIZING CENTRE for the de novo assembly of a BASAL BODY.

**deutomerite** In a cephaline gregarine: the posterior of the two main regions of the (septate) cell (cf. PROTOMERITE); it usually contains the nucleus.

**DEV** Duck embryo vaccine (see RABIES).

**Devarda's alloy** An alloy containing aluminium (45%), copper (50%) and zinc (5%); it is used e.g. to reduce nitrite and/or nitrate to ammonia.

**devil's grip** *Syn.* BORNHOLM DISEASE.

**dew retting** See RETTING.

**dexioplectic metachrony** See METACHRONAL WAVES.

**dextrans** D-Glucans in which the glucose residues are linked mainly by (1→6)- $\alpha$ -glucosidic bonds; branches are formed by occasional (1→4)- $\alpha$ - and, less frequently, (1→3)- $\alpha$ -linkages. The size of the molecule and the nature and extent of branching depend on the source of the dextran. Extracellular dextrans are produced by a range of microorganisms, sometimes in copious amounts (see e.g. ROPINESS); they are obtained commercially from strains of *Leuconostoc mesenteroides* grown anaerobically on sucrose-containing media [Book ref. 62, pp. 1–44]. Dextrans of MWt ca. 75,000 are used as plasma volume extenders for blood transfusions; they may be obtained by acid hydrolysis of higher-MWt dextrans. Artificially cross-linked dextrans (e.g. 'Sephadex') are used in GEL FILTRATION. Dextrans are relatively inert and can withstand autoclaving.

**dextrins** Products of the partial degradation of STARCH or GLYCOGEN by heat, acid hydrolysis, or enzyme action. *Limit dextrins* are those formed by enzymes that are unable to effect



Copyright © 1978, 1987 by John Wiley & Sons Ltd.

Reprinted 1988, 1989, 1991  
Reprinted with corrections, December 1994  
Japanese edition in preparation

Paperback edition 1993  
Reprinted November 1993  
Reprinted with corrections, September 1994  
Reprinted March 1995  
Reprinted February 1996

All rights reserved.

No part of this book may be reproduced by any means, or transmitted, or translated into a machine language without the written permission of the publisher

**Library of Congress Cataloging in Publication Data**  
Singleton, Paul.

Dictionary of microbiology and molecular biology.  
Rev. ed. of: Dictionary of microbiology. c1978.  
'A Wiley Interscience publication.'

1. Microbiology—Dictionaries. 2. Molecular  
biology—Dictionaries. I. Sainsbury, Diana.  
II. Singleton, Paul. Dictionary of microbiology.  
III. Title.

QR9.S56 1987 576'.03'21 87-19047

**British Library Cataloguing in Publication Data**  
Singleton, Paul, 1937-

Dictionary of microbiology and molecular  
biology.—2nd ed.

1. Microbiology—Dictionaries  
2. Molecular biology—Dictionaries

I. Title II. Sainsbury, Diana

III. Singleton, Paul, 1937-  
576'.03'21 QR9

ISBN 0 471 91114 3 (cloth)  
ISBN 0 471 94052 6 (paper)

Printed and bound in Great Britain  
by Redwood Books, Trowbridge, Wiltshire